PATENT

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In the Matter of the Application of:	IBRAHIM, Ibrahim
Serial No.:	10/526,493
Filed:	March 30, 2006
Entitled:	MEASUREMENT OF TRANSMITTER/RECEIVER SEPARATION
Docket No.:	62367-393376

Group Art Unit: 3762
Examiner: DIETRICH, Joseph

Mail Stop: Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF PURSUANT TO 37 C.F.R. § 41.37

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I. REAL PARTY IN INTEREST

The real party in interest is Cochlear Limited, which derives its rights in this application by virtue of assignment of the application to Cochlear Limited.

II. RELATED APPEALS AND INTERFERENCES

There are currently no appeals or interferences known to the Appellant, the Appellant's legal representative, or assignee that will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 1-33 and 58 are currently pending in the present application. Claims 34-57 were previously canceled. Claims 1-33 and 58 were finally rejected. No claims are allowed. The claims on appeal are claims 1-33 and 58, of which 3 claims (claims 1, 16 and 58) are independent.

IV. STATUS OF AMENDMENTS

All Amendments have been entered.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Independent claim 1 is directed to a method of determining a position of an external transceiver 24 relative to an implanted transceiver 23. (*See*, Specification, Abstract, FIG. 2, reproduced below.)

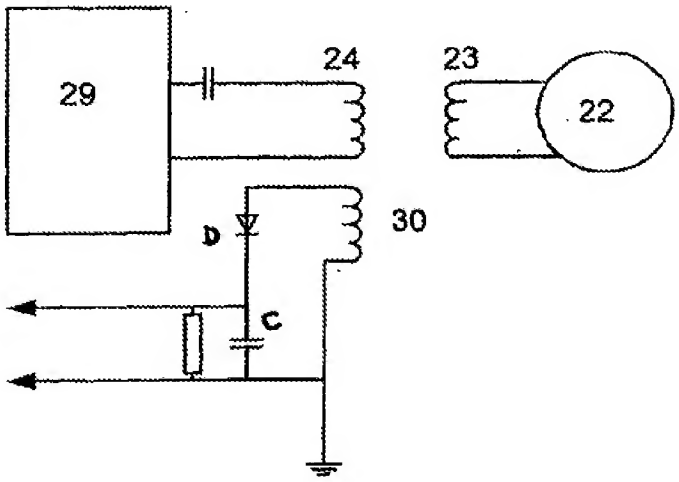

FIG. 2 of Appellant's Specification

The method comprises measuring the strength of a magnetic field proximal to the external transceiver 24, wherein the magnetic field is generated at least in part by the external transceiver 24. (*See*, Specification, Abstract, pg. 10 lns. 22-32.) The method further comprises determining a position of the external transceiver relative to the implanted transceiver from said measured magnetic field strength. (*See*, Specification, Abstract, pg. 10 lns. 22-32.)

Independent claim 16 is directed to an apparatus for determining a position of an external transceiver 24 relative to an implanted transceiver 23. (*See*, Specification, Abstract, FIG. 2, reproduced above.) The apparatus comprises means 30 for measuring the strength of a magnetic field proximal to the external transceiver 24. (*See*, Specification, Abstract, pg. 10 lns. 3-32.) This measured magnetic field is generated at least in part by the external transceiver 24. (*See*,

Specification, Abstract, pg. 10 lns. 22-32.) The apparatus further comprises means for determining a position of the external transceiver 24 relative to the implanted transceiver 23 from said measured magnetic field strength. (*See*, Specification, Abstract, pg. 10 lns. 22-32, pg. 14. lns 29-pg. 16 ln. 4, pg. 21 lns. 7-16.)

Independent claim 58 is directed to an apparatus for determining a position of an external transceiver 24 relative to an implanted transceiver 23. (*See*, Specification, Abstract, FIG. 2, reproduced above.) The apparatus comprises means 30 for measuring the strength of a magnetic field proximal to the external transceiver 24. (*See*, Specification, Abstract, pg. 10 lns. 3-32.) The apparatus further comprises means for determining a position of the external transceiver relative to the implanted transceiver from said measured magnetic field strength. (*See*, Specification, Abstract, pg. 10 lns. 22-32, pg. 14. lns 29-pg. 16 ln. 4, pg. 21 lns. 7-16.) Also included is means for comparing a measured strength of magnetic field proximal to the external transceiver to a threshold value. (*See*, Specification, pg. 14. ln. 29-pg. 16 ln. 4, FIG. 5, reproduced below)

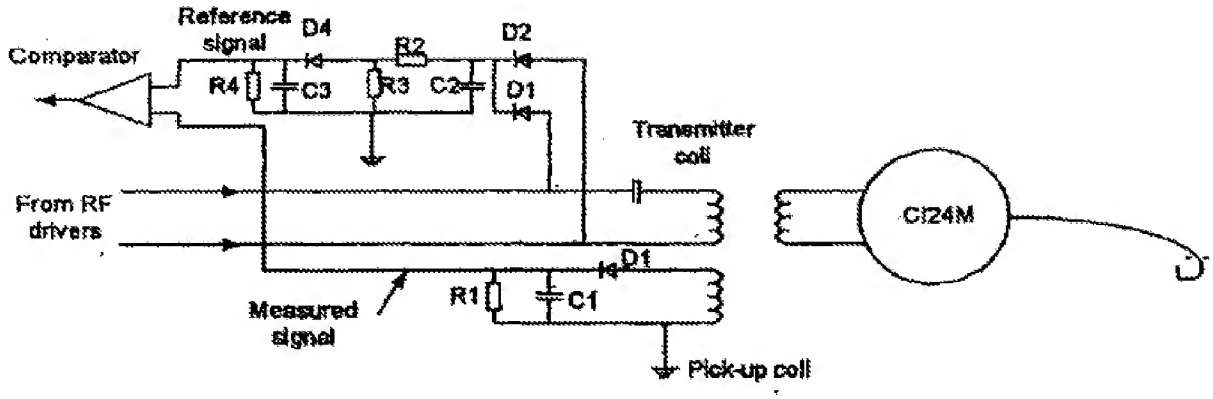

FIG. 5 of Appellant's Specification

Additionally, the apparatus comprises means for indicating that the external transceiver has been displaced when the measured strength of the magnetic field proximal to the external transceiver is greater than the threshold value. (*See*, Specification, pg. 14. ln. 29-pg. 16 ln. 4.) The apparatus also includes means for mapping comprising a look-up table comprising a plurality of pairs of values of magnetic field strength to transceiver separation distance. (*See*, Specification, pg. 21 lns. 7-16.)

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A. Whether the Examiner improperly rejected independent claims 1 and 16 and dependent claims 2-4, 11, 12, 17-19, 28, and 29 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,314,453 to Jeutter (hereinafter "Jeutter") in view of U.S. Patent No. 6,366,817 to Kung (hereinafter "Kung").

B. Whether the Examiner improperly rejected independent claims 1 and 16 and dependent claims 2-7, 11-22 and 28-32 under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Kung.

C. Whether the Examiner improperly rejected independent claim 58 under 35 U.S.C. 102(b) as anticipated by U.S. Patent No. 6,138,681 to Chen et al. (hereinafter, "Chen"), or in the alternative under 35 U.S.C. §103(a) as obvious over Chen.

VII. ARGUMENT

As noted, all claims have been rejected under 35 U.S.C §102 or §103 as anticipated or unpatentable. For at least the reasons set out below, Appellant submits that the Examiner's rejection is improper and, as such, these grounds of rejection are improper and should be reversed.

In order to establish a *prima facie* case of obviousness, the Examiner must show that each and every limitation of the claim is described or suggested by the prior art or would have been obvious based on the knowledge of those of ordinary skill in the art. *Ex Parte Robert Brunner, Michael Haisch, and Ulrich Naegele* 2009 WL 1899614, 2 (Bd.Pat.App. & Interf. June 30, 2009), citing, *In re Fine*, 837 F.2d 1071, 1074 (Fed. Cir. 1988). In the present case, the cited references fail to teach or render obvious each and every limitation of Appellants' claims. As such, the rejections should be reversed.

A. The Rejections of independent claims 1 and 16 and dependent claims 2-4, 11, 12, 17-19, 28, and 29 under 35 U.S.C. 103(a) as being unpatentable over Jeutter in view of Kung are improper and should be reversed

1. Independent Claim 1 - The proposed combination fails to disclose or render obvious "measuring the strength of a magnetic field proximal to the external transceiver, wherein the magnetic field is generated at least in part by the external transceiver" as recited in claim 1

Independent claim 1 recites, in part, "measuring the strength of a magnetic field proximal to the external transceiver, wherein the magnetic field is generated at least in part by the external transceiver…." (*See,* Applicant's claim 1, above.) The cited references, however, fail to teach or render obvious this limitation of Appellants' independent claim 1. As such, the rejections should be reversed.

a) Jeutter fails to disclose or render obvious "measuring the strength of a magnetic field proximal to the external receiver, wherein the magnetic field is generated at least in part by the external transceiver"

Jeutter is directed to a medical device that is implanted behind a tissue barrier within a person's body. (See, Jeutter, col. 2, lns. 33-36, FIG. 2, reproduced below.)

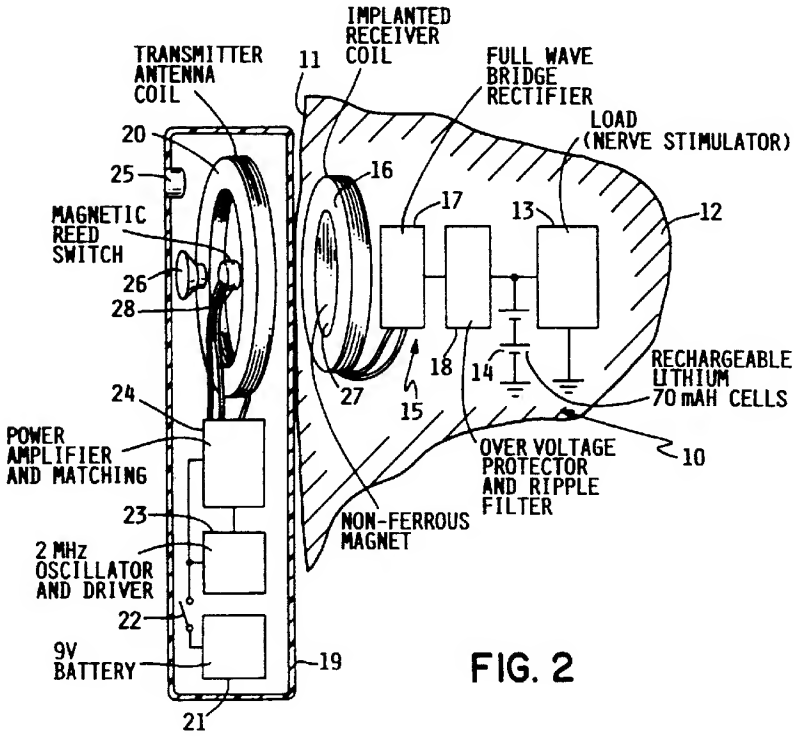

FIG. 2 of Jeutter

Jeutter discloses that the internal receiver 16 includes a ferrous magnet 27 affixed to it. (See, Jeutter, Fig. 2, col. 3, lns. 15-20.) The external transmitter 19 comprises a magnetically operated reed switch 28 that senses the presence of the internal magnet 27 to determine whether the external transceiver 19 should transmit power to the internal receiver 16. (See, Jeutter, col. 4, lns. 63 - col. 5 ln. 5.) As such, Jeutter merely discloses that the external transmitter 19 detects the presence of the internal magnet 27.

Jeutter, however, does not disclose measuring, proximal to an external receiver, a magnetic field generated at least in part by the external transceiver. In the Office Action, the Examiner acknowledges this defect of Jeutter and instead relies on Kung for allegedly teaching this limitation. (See, July 27, 2010 Office Action, pg. 5, "Jeutter…fails to teach that the magnetic field is generated at least in part by the external transceiver.") As such, Applicant submits that Jeutter fails to disclose "measuring the strength of a magnetic field proximal to the external transceiver, wherein the magnetic field is generated at least in part by the external transceiver," as recited by Applicant's claim 1.

b) Kung fails to disclose or render obvious "measuring the strength of a magnetic field proximal to the external receiver, wherein the magnetic field is generated at least in part by the external transceiver"

Kung is directed to an electromagnetic field source 100 for providing electromagnetic energy to a secondary coil 230 implanted in a recipient 205. (See, Kung, Abstract, FIG. 2, reproduced below)

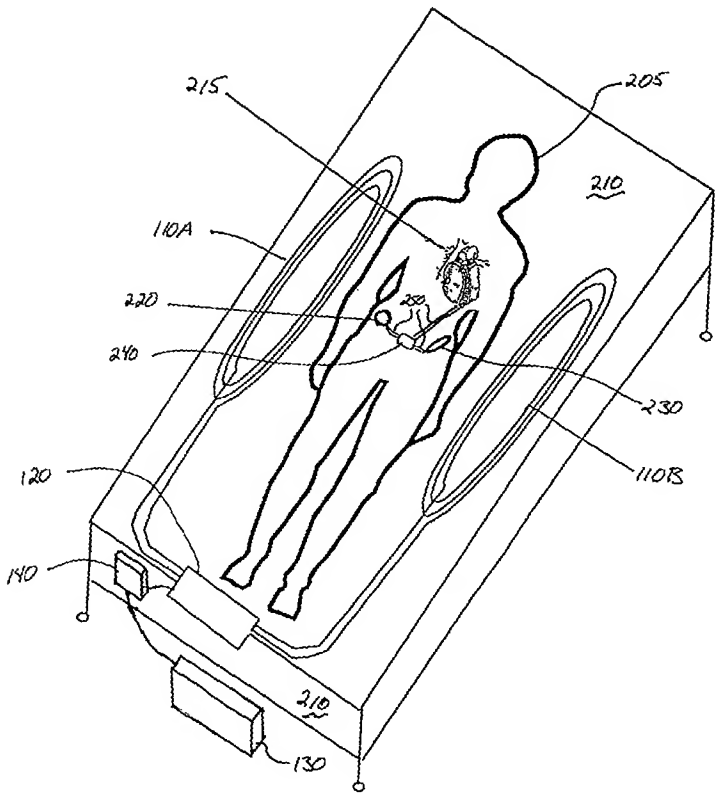

FIG. 2 of Kung

In an embodiment of Kung, a plurality of primary coils 110A and 110B are embedded in a mattress. (See, Kung, col. 7, lns. 41-42, FIG. 2 and FIG. 1, reproduced below.)

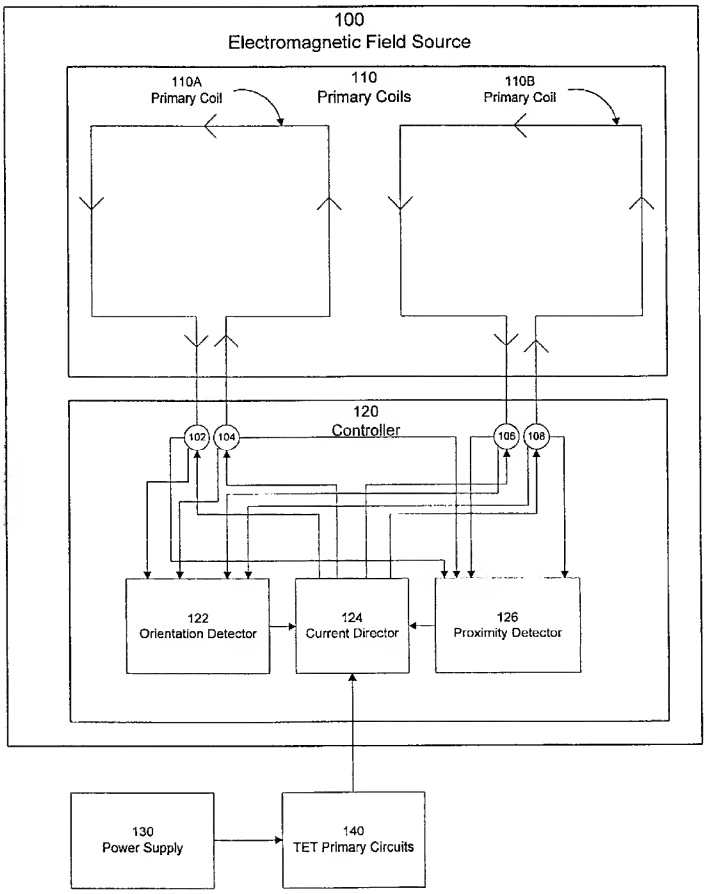

FIG. 1 of Kung

The recipient 205 may then lay on the mattress and electromagnetic energy is transmitted from the primary coils 110A and 110B to the secondary coil 230 implanted in the recipient. (See, Kung, col. 3 lns. 3-10, FIG. 2.). Kung further discloses a proximity detector 126 that can determine the approximate distance between the primary coils and the secondary coil, and adjust the amount of current to the primary coils. (See, Kung, col. 3 lns.13-16, FIG. 1.)

Kung discloses that the distance between a primary coil and a secondary coil is measured by determining the resonant frequency of the primary coil. (See, Kung, col. 19 lns. 14-39.) Particularly, Kung discloses that the resonant frequency of the primary coil is first determined when the coil is not in the presence of the secondary coil. (See, Kung, col. 19 lns. 16-18.) Then, the resonant frequency is determined when the primary coil is in the presence of the secondary coil. (See, Kung, col. 19 lns. 21-25.) The difference in frequencies, referred to as the frequency shift, can thus be measured. Using principals of mutual inductance, this frequency shift can then be converted to determine the distance between the primary and secondary coils. (See, Kung, col. 19, lns. 25-49.)

As such, Kung discloses determining the proximity between two coils by measuring the resonant frequency of the primary coil and comparing this measurement to the resonant frequency of the primary coil when not in the presence of the secondary coil. Thus, Kung does not teach measuring the strength of a magnetic field generated at least in part by an external transceiver. Rather, Kung discloses measuring a shift in the resonant frequency of a primary coil.

Applicant therefore respectfully submits that Kung fails to cure the above-noted defect of Jeutter and likewise fails disclose "measuring the strength of a magnetic field proximal to the external transceiver, wherein the magnetic field is generated at least in part by the external transceiver," as recited in claim 1.

c) The proposed combination of Jeutter and Kung fails to disclose or render obvious "measuring the strength of a magnetic field proximal to the external receiver, wherein the magnetic field is generated at least in part by the external transceiver"

In the Final Office Action dated July 27, 2010, the Examiner alleged that "it would be obvious to combine means for measuring the strength of a magnetic field as taught by Jeutter or Cheng with an external device that can generate a magnetic field and ***an internal device that can sense a magnetic field*** and determine a parameter of said field as taught by Kung…." (*See*, July 27, 2010 Office Action, pg. 3, emphasis added; also see November 10, 2010 Advisory Action pg. 2.) Thus, the proposed combination includes a measurement of the magnetic field at a location internal to the recipient (i.e., by an internal device.)

Applicant's claim 1, however, recites "***measuring the strength*** of a magnetic field ***proximal to the external transceiver***, wherein the magnetic field is generated at least in part by the external transceiver." (*See*, Applicant's claim 1, above, emphasis added.) The proposed combination does not include measuring the magnetic field proximal to the ***external*** transceiver. Rather, the combination proposed by the Examiner includes sensing the magnetic field at an ***internal*** device.

In other words, the proposed combination relied on by the Examiner includes "an internal device that can sense a magnetic field and determine a parameter of said field." (*See*, July 27, 2011 Office Action, pg. 3.) Applicant's claim 1, however, does not claim the internal device measuring the strength of the magnetic field. Rather, Applicant's independent claim 1 recites "*measuring the strength* of a magnetic field *proximal to the external transceiver*." (*See*, Applicant's claim 1, as amended, emphasis added.)

In the November 10, 2010 Advisory Action, the Examiner justified the reliance on Kung by stating "Kung teaches that it is known that the magnetic field is proximal to the external transceiver." (*See*, November 10, 2010, Advisory Action, pg. 3.) As noted above, Appellant's do not disagree that Kung discloses that the magnetic field is generated external to the recipient.

Kung, however, does not disclose that the magnetic field is measured proximal to the external transceiver that generates, at least in part, the magnetic field. That is, the proposed combination neither discloses nor renders obvious both the magnetic field being generated, at least in part, by an external transceiver and the magnetic field being measured proximal to this external transceiver. As such, the Examiner's justification in the Advisory Action for relying on Kung still does not cure the above-noted defects of the proposed combination.

Appellant therefore submits that the proposed combination fails to disclose or render obvious "measuring the strength of a magnetic field proximal to the external transceiver, wherein the magnetic field is generated at least in part by the external transceiver," as recited by Appellant's claim 1.

As such, the proposed combination fails to show that each and every limitation of Applicant's claim is described or suggested by the prior art or would have been obvious based on the knowledge of those of ordinary skill in the art. Appellant's therefore respectfully request that the rejection is improper and should be withdrawn for at least the above-discussed reasons.

d) Conclusion - Independent Claim 1

The Examiner's rejection of claim 1 as unpatentable over Jeutter in view of Kung should be reversed for at least the reason that neither Jeutter nor Kung, whether taken alone or in combination, disclose or render obvious measuring the strength of a magnetic field proximal to the external transceiver, wherein the magnetic field is generated at least in part by the external transceiver," as recited by Appellant's claim 1. Thus, because the Examiner has failed to provide a proper prima facie rejection of independent claim 1, the rejection should be reversed.

2. Independent Claim 16

Independent claim 16 recites, in part, "[a]n apparatus ... comprising: means, for measuring the strength of a magnetic field proximal to the external transceiver, wherein the magnetic field is generated at least in part by the external transceiver." In rejecting claim 16, the Examiner relied on the identical bases relied on in rejecting independent claim 1. Therefore, Appellants respectfully request that the rejection of independent claim 16 be reversed for at least similar reasons to those discussed above with reference to independent claim 1.

3. Dependent Claims 2-4, 11, 12, 17-19, 28, and 29

Dependent 2-4, 11, 12, 17-19, 28, and 29 incorporate all the subject matter of their respective independent claims and add additional subject matter which makes them independently patentable over the art of record. Accordingly, the dependent claims are likewise allowable over the art of record.

B. The Rejections independent claims 1 and 16 and dependent claims 2-7, 11-22 and 28-32 under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Kung are improper and should be reversed.

1. Independent Claim 1 - The proposed combination fails to disclose or render obvious "measuring the strength of a magnetic field proximal to the external transceiver, wherein the magnetic field is generated at least in part by the external transceiver" as recited in claim 1

Independent claim 1 recites, in part, "measuring the strength of a magnetic field proximal to the external transceiver, wherein the magnetic field is generated at least in part by the external transceiver...." (*See,* Applicant's claim 1, above.) In rejecting claim 1 over Chen in view of Kung, the Examiner relied on similar bases as the Examiner relied on in rejecting claim

1 over Jeutter in view of Kung. As will be discussed further below the rejection thus similarly does not disclose the combination of limitations of Appellant's claim 1.

Chen is directed to determining the alignment and position of an external device relative to an internal device. (See, Chen, Abstract.) To ensure optimal coupling between the external and internal devices, two permanent magnets are disposed at spaced-apart positions on the internal receiver. (See, Chen, Abstract.) The strength of the two internal permanent magnets is sensed by sensors in the external unit. (See, Chen, Abstract.) Chen further discloses a range control that may correlate the strength of the detected magnetic field to a distance separating the external and internal devices. (See, Chen, col. 6 lns. 3-15.)

As such, Chen, like Jeutter, discloses detecting a magnetic field generated by an internal magnet. In combining Chen and Jeutter in the Final Office Action dated July 27, 2010, the Examiner alleged that "it would be obvious to combine means for measuring the strength of a magnetic field as taught by Jeutter or Cheng with an external device that can generate a magnetic field and ***an internal device that can sense a magnetic field*** and determine a parameter of said field as taught by Kung…." (*See*, July 27, 2010 Office Action, pg. 3, emphasis added; also see November 10, 2010 Advisory Action pg. 2.)

As discussed above with regard to the rejection of claim 1 over Jeutter in view of Kung, the proposed combination relied on by the Examiner includes a measurement of the magnetic field at a location internal to the recipient (i.e., by an internal device.)

Appellant therefore submits that the proposed combination of Chen and Kung similarly fails to disclose or render obvious "measuring the strength of a magnetic field proximal to the external transceiver, wherein the magnetic field is generated at least in part by the external transceiver," as recited by Appellant's claim 1. Thus, because, the Examiner has failed to

provide a proper prima facie rejection of independent claim 1 as obvious, the Examiner's rejection should be reversed.

2. Independent Claim 16

Independent claim 16 recites, in part, "[a]n apparatus ... comprising: means, for measuring the strength of a magnetic field proximal to the external transceiver, wherein the magnetic field is generated at least in part by the external transceiver." In rejecting claim 16, the Examiner relied on the identical bases relied on in rejecting independent claim 1. Therefore, Appellants respectfully request that the rejection of independent claim 16 be reversed for at least similar reasons to those discussed above with reference to independent claim 1.

3. Dependent Claims 2-4, 11, 12, 17-19, 28, and 29

Dependent 2-4, 11, 12, 17-19, 28, and 29 incorporate all the subject matter of their respective independent claims and add additional subject matter which makes them independently patentable over the art of record. Accordingly, the dependent claims are likewise allowable over the art of record.

C. The Rejection of Independent Claim 58 is improper and should be reversed

Independent claim 58, as amended, recites "means for indicating that the external transceiver has been displaced when the measured strength of the magnetic field proximal to the external transceiver ***is greater than the threshold value***." (emphasis added.)

In the July 27, 2010 Office Action, the Examiner recognized that Chen discloses "determining that the device is displaced when a measured strength is less than a threshold value." (See, July 27, 2010 Office Action, pg. 3, emphasis added). The Examiner, however, argues that this teaching renders Applicant's claim obvious because "this determining is done for

the same purpose and solves the same problem...." (See, Office Action, pg. 3.) Appellant disagrees.

Appellant's claim limitation is not simply a design choice. But, is radically different from the system of Chen and provides an advantage over the system of Chen. As previously noted, in Chen, the magnetic field is generated by internal magnets. As such, when the internal and external units are separated, the sensed magnetic field will drop. As such, Chen could only detect that the internal and external units are separated if the magnetic field fell below a threshold.

In contrast, claim 58 recites "means for indicating that the external transceiver has been displaced when the measured strength of the magnetic field proximal to the external transceiver is greater than the threshold value and not if it exceeded a threshold." (See, Applicant's claim 58, above.) The system of Chen is quite different in that the sensed magnetic field in Chen will drop, not increase, as the internal and external units become separated.

Moreover, Applicant's invention of claim 58 provides a distinct advantage over that of Chen in that the invention recited in Applicant's claim 58 allows for the actual field between the transmitter and the receiver to be measured. Measurement of this field provides an improved mechanism for detecting whether the internal and external transceivers are properly aligned. In other words, measuring the strength of the magnetic field itself provides a more reliable measure of whether communications can take place may between the internal and external transceivers. When measuring the actual magnetic field between the transmitter and receiver, the strength of the field proximal to the external transceiver will increase (not decrease) as the external and internal units become separated. As such, the cited limitation of Appellant's independent claim 58 is not a mere design choice but provides specific advantages over that of the prior art.

Appellant therefore submits that the Examiner's assertion that "means for indicating that the external transceiver has been displaced when the measured strength of the magnetic field proximal to the external transceiver is greater than the threshold value," is a mere design choice is without merit. As such, Appellant asserts that that the rejection of independent claim 58 is improper and should be withdrawn.

D. Conclusion

For the reasons noted above, Appellants submit that the pending claims define patentable subject matter. Accordingly, Appellants request that the Examiner's rejection of these claims be reversed and that the pending application be passed to issue.

Dated: January 31, 2011

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CLAIMS APPENDIX

1. A method of determining a position of an external transceiver relative to an implanted transceiver, the method comprising:

measuring the strength of a magnetic field proximal to the external transceiver, wherein the magnetic field is generated at least in part by the external transceiver; and

determining a position of the external transceiver relative to the implanted transceiver from said measured magnetic field strength.

2. The method according to claim 1 wherein determining comprises:

comparing a measured strength of magnetic field proximal to the external transceiver to a threshold value.

3. The method according to claim 2 further comprising:

indicating that the external transceiver has been displaced when the measured strength of magnetic field proximal to the external transceiver is greater than the threshold value.

4. The method according to claim 3 wherein indicating comprises:

providing an audible indication.

5. The method according to claim 1 wherein determining comprises:

mapping said measured magnetic field strength to a distance value.

6. The method according to claim 5 wherein mapping comprises:

consulting a look-up table comprising a plurality of pairs of values, each pair of values mapping a particular magnetic field strength to a corresponding transceiver separation distance.

7. The method according to claim 5 wherein mapping comprises:

algorithmically converting said measured value of magnetic field into a corresponding transceiver separation distance.

8. The method according to claim 1 further comprising:

providing a transcutaneous link between the external transceiver and the implanted transceiver, the link being bidirectional such that the external transceiver and the implanted transceiver transmit and receive signals across the transcutaneous link.

9. The method according to claim 8 further comprising:

transmitting power and data signals from the external transceiver to the implanted transceiver across the transcutaneous link.

10. The method according to claim 8 further comprising:

transmitting data signals from the implanted transceiver to the external transceiver across the transcutaneous link.

11. The method according to claim 1 further comprising:

providing a transcutaneous link between the external transceiver and the implanted transceiver, the link being unidirectional such that the external transceiver, comprising a transmitter, transmits signals to the implanted transceiver, comprising a receiver, across the transcutaneous link.

12. The method according to claim 11 wherein the signals transmitted by the transmitter are power and data signals.

13. The method according to claim 1 wherein measuring comprises:

positioning a pick-up coil proximal to the external transceiver such that a voltage induced on the pick-up coil is indicative of a magnetic field proximal to the external transceiver.

14. The method according to claim 13 further comprising:

the positioning the pick-up coil in a plane substantially perpendicular to a primary axis of the magnetic field, wherein the magnetic is produced between the external receiver and the implanted receiver.

15. The method according to claim 14 wherein the pick-up coil comprises an open-circuited single turn positioned concentrically with turns of the external receiver.

16. An apparatus for determining a position of an external transceiver relative to an implanted transceiver, the apparatus comprising:

means for measuring the strength of a magnetic field proximal to the external transceiver, wherein the magnetic field is generated at least in part by the external transceiver; and

means for determining a position of the external transceiver relative to the implanted transceiver from said measured magnetic field strength.

17. The apparatus according to claim 16 further comprising means for comparing a measured strength of magnetic field proximal to the external transceiver to a threshold value.

18. The apparatus according to claim 17 further comprising means for indicating that the external transceiver has been displaced when the measured strength of magnetic field proximal to the external transceiver is greater than the threshold value.

19. The apparatus according to claim 18 wherein the means for indicating comprises any one of an audible alarm, or a visible indicator.

20. The apparatus according to claim 16 further comprising means for mapping a measured magnetic field strength proximal to the external transceiver to a distance value.

21. The apparatus according to claim 20 wherein the means for mapping comprises a look-up table comprising a plurality of pairs of values of magnetic field strength to transceiver separation distance.

22. The apparatus according to claim 20 wherein the means for mapping comprises means for algorithmically converting said measured value of magnetic field into a corresponding transceiver separation distance.

23. The apparatus according to claim 16 wherein the external transceiver and the implanted transceiver provide a transcutaneous link.

24. The apparatus according to claim 23 wherein the transcutaneous link comprises an RF link.

25. The apparatus according to claim 23 wherein the transcutaneous link is bidirectional such that the external transceiver and the implanted transceiver transmit and receive signals across the transcutaneous link.

26. The apparatus according to claim 25 wherein power and data signals are transmitted from the external transceiver to the implanted transceiver across the transcutaneous link.

27. The apparatus according to claim 25 wherein data signals are transmitted from the implanted transceiver to the external transceiver across the transcutaneous link.

28. The apparatus according to claim 23 wherein the transcutaneous link is unidirectional, the external transceiver comprises a transmitter and the implanted transceiver comprises a receiver, such that the transmitter transmits signals to the receiver across the transcutaneous link.

29. The apparatus according to claim 28 wherein the signals transmitted by the transmitter are power and data signals.

30. The apparatus according to claim 16 wherein the means for measuring the strength of the magnetic field proximal to the external transceiver comprises a pickup coil positioned proximal to the external transceiver, such that a voltage induced on the pickup coil is indicative of a magnetic field proximal to the external transceiver.

31. The apparatus according to claim 30 wherein the pickup coil is positioned in a plane substantially perpendicular to a primary axis of the magnetic field and wherein the magnetic field is produced by the transceivers.

32. The apparatus according to claim 31, wherein the external transceiver comprises a transmitter coil comprising turns and wherein the pickup coil comprises an open circuited single turn positioned concentrically with turns of the external transceiver.

33. The apparatus according to claim 30, further comprising:

peak detector means; and

wherein an output of the pick-up coil is passed through the peak detector means.

34-57. (Canceled)

58. An apparatus for determining a position of an external transceiver relative to an implanted transceiver, the apparatus comprising:

means for measuring the strength of a magnetic field proximal to the external transceiver;

means for determining a position of the external transceiver relative to the implanted transceiver from said measured magnetic field strength;

means for comparing a measured strength of magnetic field proximal to the external transceiver to a threshold value;

means for indicating that the external transceiver has been displaced when the measured strength of the magnetic field proximal to the external transceiver is greater than the threshold value; and

means for mapping comprises a look-up table comprising a plurality of pairs of values of magnetic field strength to transceiver separation distance.

EVIDENCE APPENDIX

None

RELATED PROCEEDINGS APPENDIX

None